DETAILED ACTION

Response to Amendment

Applicant's amendment of 8/19/2011 does not render the application allowable.

Remarks

Applicant has amended claims 11-12. Claims 11-15, 25-28 and 30-47 are pending in the application and are considered on their merits below.

Status of Objections and Rejections

The objection to claim 36 is withdrawn in view of Applicant's arguments.

All rejections from the previous office action are withdrawn in view of Applicant's amendments. New grounds of rejection necessitated by the amendments are set forth below.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 11-15, 25-28 and 30-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 11-12, the amendments require "the opening portion does not separate the transparent electrode layer". Applicant has not provided support for such a

limitation in the orignial disclosure. Applicant is directed to instant Figure 1 and the representative figure presented in the arguments. The word “separate” means to keep apart or divide as by intervening space; the transparent electrode of the instant is clearly separated by the “holes” shown in the representative figure in the arguments and clearly separated by opening portion, 7 in Figure 1.

Claims 13-15, 25-28 and 30-47 are dependent on rejected base claims 11 and 12 and are thereby rejected themselves.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-15, 25-28 and 30-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 11 and 12, it is unclear as to how Applicant intends the transparent electrode to have at least an opening portion within which the transparent electrode layer is absent **and** wherein the opening portion does not separate the transparent electrode layer. For the purposes of this action, the claim will be treated as though the addition of another layer on top of the transparent electrode layer that can “fill in" the opening portions can maintain electrical connection. Appropriate clarification and correction are required.

Claims 13-15, 25-28 and 30-47 are dependent on rejected base claims 11 and 12 and are thereby rejected themselves.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 11-12, 25-27, 30, 36, and 44-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuwano (US 4281208).

As to claim 11, Kuwano is directed to a photoelectric conversion device (Figures 4, 5, 6) comprising:

- A photoelectric conversion layer stacked above a structure (PIN, 13, 14, 15) stacked above a structure (see Figure 4); and
- A backside electrode layer (111, 112) stacked above the photoelectric conversion layer, wherein
- The structure comprises:
  - A substrate (7); and
  - A transparent electrode layer (91-93) formed on at least part of a surface region of the substrate (7), the transparent electrode layer having at least an opening portion within which the transparent electrode layer is absent (openings between 91, 92 and 93),
- Wherein the opening portion does not separate the transparent electrode layer (still electrically connected by p layer, 13 as shown in Figure 5), and

- Wherein the opening portion is not covered by the transparent electrode layer (shown in Figure 4).

As to claim 12, Kuwano is directed to a stacked photoelectric conversion device (Figure 4), comprising:

- A first photoelectric conversion layer stacked above a structure (13, P layer);
- A first intermediate layer stacked above the first photoelectric conversion layer (14, I layer);
- A second photoelectric conversion layer stacked above the first intermediate layer (15, N layer) such that the first intermediate layer (14) is sandwiched between the first (13) and second (15) photoelectric conversion layers (PIN, Figure 5); and
- A backside electrode layer (111, 112) stacked above the second photoelectric conversion layer, wherein
- The structure comprises:
    - A substrate (7); and
    - A transparent electrode layer (91-93) formed on at least part of a surface region of the substrate (7), the transparent electrode layer having at least an opening portion within which the transparent electrode layer is absent (openings between 91, 92 and 93),
- Wherein the opening portion does not separate the transparent electrode layer (still electrically connected by p layer, 13 as shown in Figure 5), and

- Wherein the opening portion is not covered by the transparent electrode layer (shown in Figure 4).

Regarding claims 25 and 36, the reference teaches the substrate (7) being a transparent substrate such that the transparent electrode (91-93) layer is formed on the surface region of the transparent substrate (column 5, lines 41-44 teaches a glass substrate).

Regarding claim 26, the reference teaches the transparent electrode layer having a texture surface on its surface (see Figure 4; electrode layer is defined by 91, 92, 93 and the openings in between and therefore the surface reads on the instant texture surface).

Regarding claim 27, the reference teaches the transparent electrode layer being ITO (column 5, lines 6-11) and the substrate being glass (column 5, lines 41-44). Applicant states in the instant specification that both materials are appropriate choices for the electrode layer and substrate, respectively (paragraphs [0156]-[0157]). It is the Examiner's position that the haze index at 550 nm wavelength of the transparent electrode layer and a light transmittance of a combination of the transparent substrate and the transparent electrode layer are inherent characteristics of these materials. Further, where the claimed and prior art products are substantially identical in structure, a *prima facie* case of anticipation has been established (*In re Best* and MPEP § 2112.01).

Regarding claim 30, the reference teaches that the opening portions (spaces between 91, 92 and 93) do not include grooves for separating a transparent electrode

provided for forming an integrated structure in which a plurality of photoelectric conversion cells are electrically connected in series (see Figure 4). The Examiner notes that Figures 4-6 of Kuwano do not show a groove *in* the opening portion.

Regarding claim 36, the reference teaches an intermediate layer (14) formed on the first photoelectric conversion layer; and a second photoelectric conversion layer (15) formed on the intermediate layer.

Regarding claims 44-45, the reference teaches a plurality of opening portions being interspersed in the transparent electrode (see configuration in Figure 4).

Regarding claim 46, the reference teaches the transparent substrate being glass (column 4, lines 39-41).

7. Claims 11-12, 25-27, 30-31, 35-36 and 44-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato (EP 1443527, cited in IDS).

As to claim 11, Sato is directed to a photoelectric conversion device (Figures 1 and 5), comprising:

- A photoelectric conversion layer (42) stacked above a structure (Figure 5); and
- A backside electrode layer (43) stacked above the photoelectric conversion layer (see Figure 5), wherein
- The structure comprises:
    - A substrate (44 and 1); and
    - A transparent electrode layer (45 and 4/5 of Figure 1) formed on at least part of a surface region of the substrate (1), the transparent

electrode layer having at least an opening portion within which the transparent electrode layer is absent (see Figure 1).

- Wherein the opening portion does not electrically separate the transparent electrode layer (see Figure 1, electrically connected by 5), and
- Wherein the opening portion is not covered by the transparent electrode layer (covered by layer 5, not by instant transparent electrode, 4).

As to claim 12, Sato is directed to a stacked photoelectric conversion device (Figures 1 and 5), comprising:

- A first photoelectric conversion layer stacked above a structure, a first intermediate layer stacked above the first photoelectric conversion layer, a second photoelectric conversion layer stacked above the first intermediate layer such that the first intermediate layer is sandwiched between the first and second photoelectric conversion layers (PIN, 42); and
- A backside electrode layer (43) stacked above the second photoelectric conversion layer, wherein
- The structure comprises:
    - A substrate (44 and 1); and
    - A transparent electrode layer (4) formed on at least part of a surface region of the substrate (44 or 1), the transparent electrode layer having at least an opening portion within which the transparent electrode layer is absent (see Figures 1 and 5),

- Wherein the opening portion does not electrically separate the transparent electrode layer (electrically connected by layer 5), and
- Wherein the opening portion is not covered by the transparent electrode layer (shown in Figure 1).

Regarding claims 25 and 36, the reference teaches the substrate being a transparent substrate (glass; paragraph [0026]) such that the transparent electrode layer is formed on the surface region of the transparent substrate (see Figure 1 and paragraph [0033]).

Regarding claim 26, the reference teaches the transparent electrode layer having a texture structure on its surface (Figure 1; paragraph [0035], continuous layer 5 has projections/texture).

Regarding claim 27, the reference teaches a haze from 10 to 95% over a full wavelength region of 400-800nm (paragraph [0025]) and further teaches the transparent electrode layer being ITO and the transparent substrate being glass (paragraphs [0026]-[0051]). Applicant states in the instant specification that both materials are appropriate choices for the electrode layer and substrate, respectively (paragraphs [0156]-[0157]). It is the Examiner's position that the haze index at 550 nm wavelength of the transparent electrode layer and a light transmittance of a combination of the transparent substrate and the transparent electrode layer are inherent characteristics of these materials. Further, where the claimed and prior art products are substantially identical in structure, a *prima facie* case of anticipation has been established (*In re Best* and MPEP § 2112.01).

Regarding claim 30, the reference teaches that the opening portions do not include grooves for separating a transparent electrode provided for forming an integrated structure in which a plurality of photoelectric conversion cells are electrically connected in series (see Figures 1 and 5).

Regarding claim 31, the reference teaches the transparent electrode layer (4) being a first transparent electrode layer, the device further comprising a second transparent electrode layer (5) formed on the first transparent electrode layer (4) so as to be formed in between the first transparent electrode layer and the photoelectric conversion layer, wherein the second transparent electrode layer covers some or all of the opening portions (see Figure 1).

Regarding claim 35, the reference teaches the substrate (1) having a metal film, transparent conductive film or an insulating film on the surface thereof (paragraph [0028]).

Regarding claim 36, the reference teaches an intermediate layer formed on the first photoelectric conversion layer and a second photoelectric conversion layer on the intermediate layer (PIN, 42).

Regarding claims 44-45, the reference teaches a plurality of opening portions being interspersed in the transparent electrode (see configuration in Figure 1).

Regarding claim 46, the reference teaches the transparent substrate being glass (paragraph [0015]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwano (US 4281208) as applied to claim 25 above, and further in view of Kondo (US 6469242).

Regarding claim 47, Applicant is directed above for a full discussion of Kuwano as applied to claim 25 (and base claim, 11). Kuwano teaches a glass substrate (column 4, lines 39-41) but fails to teach the glass substrate being coated with an insulating film.

Kondo is directed to silicon solar cells having a glass substrate (1) with a SiO_2 insulating film coating to prevent diffusion of impurities into the cell (column 7, lines 52-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to coat the glass substrate of Kuwano's device with a SiO_2 film to prevent diffusion of impurities into the cell as taught by Kondo.

12. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (EP 1443527, cited in IDS) as applied to claim 25 above, and further in view of Kondo (US 6469242).

Regarding claim 47, Applicant is directed above for a full discussion of Sato as applied to claim 25 (and base claim 11). Sato teaches a glass substrate (paragraph [0015]) but fails to teach the glass substrate being coated with an insulating film.

Kondo is directed to silicon solar cells having a glass substrate (1) with a SiO_2 insulating film coating to prevent diffusion of impurities into the cell (column 7, lines 52-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to coat the glass substrate of Sato's device with a SiO_2 film to prevent diffusion of impurities into the cell as taught by Kondo.

13. Claims 11-15, 25 and 36-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5350459) in view of Sato (EP 1443527, cited in IDS).

As to claim 11, Suzuki is directed to a photoelectric conversion device (Figures 1 and 2), comprising:

- A photoelectric conversion layer (EAOLs and EDOLs) stacked above a structure; and
- A backside electrode layer (3) stacked above the photoelectric conversion layer (Figures 1 and 2), wherein
- The structure comprises:
    - A substrate (1); and
    - A transparent electrode layer (2) formed on at least part of a surface region of the substrate (1).

Suzuki is silent as to the first transparent electrode layer having at least an opening portion within which the first transparent electrode layer is absent, wherein the opening portion does not separate the transparent electrode layer and the opening portion is not covered by the transparent electrode layer.

However, it is known in the photoelectric art to utilize a substrate (1) with a transparent electrode (4) having at least an opening portion within which the first electrode layer is open (see Figure 1), the opening portion not separating the transparent electrode layer (electrical connection maintained through layer 5) such that the opening portion is not covered by the transparent electrode layer (shown in Figure 1) as the structure on which to form a photoelectric conversion device as such a

substrate structure has excellent mass production efficiency, low resistance, high transparency and a good light scattering performance as taught by Sato (Figure 1 and abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the substrate structure having a transparent electrode with at least an opening portion within which the first electrode layer is open in the device of Suzuki as such a structure has excellent mass production efficiency, low resistance, high transparency and a good light scattering performance as taught by Sato.

As to claim 12, Suzuki is directed to a stacked photoelectric conversion device (Figure 1), comprising:

- A first photoelectric conversion layer (EAOL I) stacked above a structure;
- A first intermediate layer (EAOL II) stacked above the first photoelectric conversion layer;
- A second photoelectric conversion layer (EDOL II) stacked above the first intermediate layer such that the first intermediate layer is sandwiched between the first and second photoelectric conversion layers (EAOL II sandwiched between EAOL I and EDOL II); and
- A backside electrode layer (3) stacked above the second photoelectric conversion layer, wherein;
- The structure comprises:
    - A substrate (1);

- A first transparent electrode layer (2) formed on at least a part of a surface region of the substrate (1).

Suzuki is silent as to the first transparent electrode layer having at least an opening portion within which the first transparent electrode layer is absent, wherein the opening portion does not separate the transparent electrode layer and the opening portion is not covered by the transparent electrode layer.

However, it is known in the photoelectric art to utilize a substrate (1) with a transparent electrode (4) having at least an opening portion within which the first electrode layer is open (see Figure 1), the opening portion not separating the transparent electrode layer (electrical connection maintained through layer 5) such that the opening portion is not covered by the transparent electrode layer (shown in Figure 1) as the structure on which to form a photoelectric conversion device as such a substrate structure has excellent mass production efficiency, low resistance, high transparency and a good light scattering performance as taught by Sato (Figure 1 and abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the substrate structure having a transparent electrode with at least an opening portion within which the first electrode layer is open in the device of Suzuki as such a structure has excellent mass production efficiency, low resistance, high transparency and a good light scattering performance as taught by Sato.

Regarding claim 13, modified Suzuki teaches the first intermediate layer having at least an opening portion within which the first intermediate layer is absent (pin holes;

column 40, lines 20-25), and the pair of the photoelectric conversion layers sandwiching the first intermediate layer therebetween come into contact with each other through the opening portion of the first intermediate layer (column 6, lines 64-81 and column 40, lines 21-32).

Regarding claim 14, modified Suzuki teaches the first intermediate layer (EAOL II) having at least an opening portion within which the first intermediate layer is absent (pin holes), the device further comprising a second intermediate layer (EDOL I) between the first intermediate layer (EAOL II) and the photoelectric conversion layer thereon (EAOL I and EDOL II), the second intermediate layer covering the opening portion of the first intermediate layer (column 6, lines 64-68 and column 40, lines 21-32).

Regarding claim 15, modified Suzuki teaches the second intermediate layer (EDOL I) having a thinner film thickness than that of the first intermediate layer (EAOL II) (see column 40, line 56 to column 41, line 51).

Regarding claims 25 and 36, modified Suzuki teaches the substrate (1) being a transparent substrate (glass) such that the transparent electrode layer (4) is formed on the surface region of the transparent substrate with an intermediate layer (EAOL II) formed on the first photovoltaic conversion layer and a second photoelectric conversion layer (EDOL II) formed on the intermediate layer (see Sato; paragraphs [0026] and [0033] and Figure 1).

Regarding claim 37, modified Suzuki teaches the opening portions of the transparent electrode layer being first opening portions and the intermediate layer

having a plurality of second opening portions within which the intermediate layer is absent (pin holes; column 40, lines 20-25).

Regarding claim 38, modified Suzuki teaches pin holes in the intermediate layer therefore, the holes/openings in the second organic photoactive layer causes the first deposited layer to be in direct contact with the third deposited layer thus having the first and second photoelectric conversion layer being in contact through the second opening portions (column 6, lines 64-68 and column 40, lines 21-32).

Regarding claim 39, modified Suzuki teaches the intermediate layer being a first intermediate layer, the device further comprising a second intermediate layer (EDOL I) being formed on the first intermediate layer (EAOL II) so as to be formed in between the first intermediate layer and the second photoelectric conversion layer (see Figure 1) wherein the second intermediate layer covers some or all of the second opening portions (see column 40, lines 20-32 and column 6, lines 64-68).

Regarding claims 40-41, modified Suzuki teaches that in order to alter the occurrence of short-circuits in the device, the presence of pin holes can be reduced. A variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation (see *In re Antonie* and MPEP § 2144.05).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the aperture ratio of the intermediate layer (by altering the presence of pin holes) in order to reduce the occurrence of short-circuits in the

device such that the aperture ratio falls within an optimum or workable range (such as the instant 16% to 63%).

Regarding claim 42, modified Suzuki teaches an intermediate layer with pin holes (column 40, lines 20-32). This structure reads on a texture on the surface of the intermediate layer.

Regarding claim 43, modified Suzuki does not specifically teach a short circuit current density of the first and second photoelectric conversion layers being equal. However, the reference does teach the benefits of reducing occurrence of short-circuits (column 40, lines 11-33) of both the first and second photoelectric conversion layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the short-circuit occurrence as taught by Suzuki such that the current density of the first and second layer are substantially equal.

Regarding claims 44-45, modified Suzuki teaches a plurality of opening portions being interspersed in the first transparent electrode (see Sato; Figure 1).

Regarding claim 46, modified Suzuki teaches the transparent substrate being glass (column 40, lines 34-37).

14. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5350459) in view of Sato (EP 1443527, cited in IDS) as applied to claim 25 above, and further in view of Kondo (US 6469242).

Regarding claim 47, Applicant is directed above for a full discussion of Suzuki in view of Sato as applied to claim 25 (and base claim 11). Modified Suzuki teaches a

glass substrate (column 40, lines 34-37) but fails to teach the glass substrate being coated with an insulating film.

Kondo is directed to silicon solar cells having a glass substrate (1) with a SiO_2 insulating film coating to prevent diffusion of impurities into the cell (column 7, lines 52-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to coat the glass substrate of modified Suzuki's device with a SiO_2 film to prevent diffusion of impurities into the cell as taught by Kondo.

15. Claims 28, 32-33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (EP 1443527, cited in IDS) as applied to claims 25 and 31 above.

Regarding claim 28, Applicant is directed above for a full discussion of Sato as applied to claim 25. Sato teaches an aperture ratio of the transparent electrode layer ranging from 0.1 to 0.7 (10%-70%; paragraph [0038]), the aperture ratio being defined as a sum of the areas of the opening portions of a surface area divided by the surface area, the surface area being an area of the surface region of the transparent substrate on which the transparent electrode layer is formed (paragraph [0038]), and wherein an average radius of the opening portions over the surface area is 0-2 μm, in which a radius r_n of an n'th opening portion is calculated by a formula $r_n=(S_n/\pi)^{1/2}$, n being an integer from 1 to k in which k is a number of the opening portions and S_n being an area of the n'th opening portion (see paragraphs [0019] and [0033]-[0057] and Figure 1).

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (*In re Wertheim* and MPEP § 2144.05).

Regarding claim 32, Applicant is directed above for a full discussion of Sato as applied to claim 31. Sato teaches a thickness of the first layer (H_c) preferably being from 0.2-1.0 µm (200-1000 nm; paragraph [0052]) and a thickness of the second transparent electrode layer (H_e) being 0.5 to 1.0 µm (500-1000 nm; paragraph [0055]). Therefore, the reference teaches points where the thickness of the second transparent electrode layer is less than a thickness of the first transparent layer. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (*In re Wertheim* and MPEP § 2144.05).

Regarding claim 33, the reference teaches the thickness of the first transparent electrode layer ranging from 200-1000 nm (paragraph [0052]). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (*In re Wertheim* and MPEP § 2144.05).

Sato teaches the second transparent electrode being 200-2000 nm (paragraph [0019]) but does not teach the second transparent electrode ranging substantially between 10 nm and 100 nm.

However, In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative

dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device (see MPEP § 2144.14 IV).

Regarding claim 34, the reference teaches a synthesized sheet resistance of the first and second transparent electrode substantially ranging between 8 Ω/□ and 20 Ω/□ (paragraph [0067]). In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists (*In re Wertheim* and MPEP § 2144.05).

Response to Arguments

16. Applicant's arguments filed 8/19/2011 have been fully considered but they are not persuasive:

Applicant's arguments with regard to the 112, 2nd paragraph rejection does not overcome the rejection. The amendment of changing "electrically separate” to "separate" does not clarify the claim. The option of electrically separated is encompassed by the broader limitation "separate". Further, there is no support in the original disclosure for this limitation.

Applicant argues that the original disclosure states ‘opening portion does not include a groove for separating a transparent electrode provided for forming an integrated structure…’ and provides an explanatory figure to distinguish the presented invention from the prior art (pp 14-15 of Arguments).

The Examiner respectfully submits that the arguments are not commensurate in scope with the claims. Claims 11 and 12 currently require the opening portions of the transparent electrode to "not separate the transparent electrode layer". This is not

shown in the explanatory figure. In fact, the explanatory figure clearly shows separation of the transparent electrode layer at each opening portion. As such, the separations between Kuwano's transparent electrodes (91, 92, 93) reads on the instant opening portions.

Applicant argues “the Examiner alleges that Kuwano's P type layer, I layer, and N layer are equivalent to the claimed first, intermediate and second conversion layer…one of ordinary skill in the art would not interpret the P type layer 13 and the N type layer 15 of the amorphous layer 10 to be two different photoelectric conversion layers as the Examiner has done. Simply put, the Examiner's interpretation is inconsistent with the ordinary and customary meaning of 'photoelectric conversion layer'...” (pp 16-17 of Arguments).

The Examiner respectfully disagrees. The current claims do not require multiple layer “cells”, but merely recites multiple photoelectric conversion layers. As Kuwano teaches multiple *layers* comprising *photoelectric* material, the claim limitations are met.

Applicant argues (regarding Sato) “None of the small ridges 4 themselves contain any opening portions therein. The feature of ‘wherein the opening portion does not separate the transparent electrode layer’ cannot be shown by the discontinuous ridges 4…” (pp 18).

The Examiner respectfully disagrees. Considering all portions 4 as a whole representing the electrode layer, the portions between adjacent 4’s read on the instant opening portion. Further, as noted above, the continuous layer 5 serves to electrically connect adjacent portions of 4 and, as such, the portions of 4 (transparent electrode

layer) are not electrically separated. This reads on the instant limitation of "not separated", which is open to any type of separation (physical, electrical, etc).

Applicant argues "the entirety of the organic layers EAOL I, EAOL II, EDOL I and EDOL II form a single photovoltaic layer" (pp 20).

The Examiner respectfully disagrees. Again, it is noted that the instant claims do not require multiple cell layers, but merely recited multiple photovoltaic conversion layers. As Suzuki teaches multiple layers of conversion material, the claim limitations are met.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHANNON GARDNER whose telephone number is (571)270-5270. The examiner can normally be reached on Monday to Thursday, 5am-3pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571.272.1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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